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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,371	04/19/2007	John T. Groves	LBNL.001NP	9474

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EXAMINER

SNYDER, STUART

ART UNIT	PAPER NUMBER
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1648

NOTIFICATION DATE	DELIVERY MODE
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01/06/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
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Office Action Summary	Application No. 10/581,371	Applicant(s) GROVES ET AL.	
	Examiner STUART W. SNYDER	Art Unit 1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 1-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-32 is/are rejected.
- 7) ☒ Claim(s) 18, 28 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2006 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/20/2006, 4/7/2008, 11/4/2008</u> . | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group II (claims 18-32) in the reply filed on 11/4/2008 is acknowledged. Claims 1-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claim Objections

2. Claim 30 is objected to because of the following informalities: The word "fluorescence" is misspelled. Appropriate correction is required.
3. Claims 18 and 28 are objected to because of the following informalities: The word "dynamical" is used in place of the word "dynamic". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 18, 25-28, 30 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Tang, *et al.* (2001). The claims are drawn to an assay system for detecting the binding of analytes to colloidal particles in suspension. Limitations include that the following: Particle suspension near dynamic phase transition, a ligand specific for the analyte is associated with the colloidal particles, a device

capable of detecting phase transition is associated with system (claim 18), ligands are non-covalently linked to colloidal particles (claims 25 and 32), phases condensed and dispersed (claims 26 and 27), phase transition associated with analyte binding to ligand (claim 28), and the detection means is a fluorescence detector (claim 30).

Tang, *et al.* teaches providing a suspension of colloidal nanoparticles above the phase transition temperature of the polyNPAAm part (p. 165). A complementary ODN was added to the dispersion, wherein the particles dispersed in the absence of the complementary ODN, and aggregated in the presence of the complementary DNA. The distances between the colloidal particles were measured as they were measured in a dispersed phase as opposed to an aggregated phase. Further, a decrease in transmittance was measured in the conjugate solution containing the complementary ODN. Thus, TANG *et al.* teaches a method and device determining that the DNA-linked colloidal nanoparticles aggregate depending on the DNA hybridization (p. 166).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 22-24 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang, *et al.* in view of Schaertl, *et al.* In addition to the implicit limitations of

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independent claim 18, claims 22 and 23 further limit the scope of the claimed invention by requiring the presence of a lipid (claim 22) layer, especially a natural cell membrane as the lipid layer (claim 23) or alternatively, the colloidal particles are covalently linked to a binding partner. Tang, *et al.* does not teach lipids as components of colloidal particles. Schaertl, *et al.* teaches use of nanoparticles labeled with antibodies or other specific binding partners in an ELISA type assay (see, for example, Fig. 1, page 228). One of the species of nanoparticles used was non-replicating *E. coli* which inherently possesses a natural lipid bi-layer capable of presenting the capture agent to liquid phase. A second format taught by Schaertl, *et al.* is a synthetic nanoparticle to which binding agents are covalently attached to the nanoparticle. Furthermore, as with the assay of the instant Application, the assay of Schaertl, *et al.* can be performed in a homogeneous format.

It would have been obvious to use the nanoparticles of Schaertl, *et al.* in the assay of Tang, *et al.* to increase the range of analytes available for detection. A skilled artisan would have been motivated to use *E. coli* or synthetic nanoparticles as a nanoparticle in Tangs' assay because of the common desire of both groups to specifically detect analytes, especially those in low concentrations. Said skilled artisan would have a reasonable expectation of success, especially when expressing antibody-like molecules on the surface of the bacteria or attaching them to nanoparticles, because clumping of either nanoparticle would occur because of the multivalent nature of the particles. Thus,

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the invention of claims 22-24 and 31 are *prima facie* obvious and the claims are properly rejected under 35 U.S.C. 103(a) as being unpatentable over Tang, *et al.* in view of Schaertl, *et al.*

6. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tang, *et al.* in view of Faulds, *et al.* Claim 29 adds the limitation that the means for detecting comprises a microscope. Faulds, *et al.* teaches using a microscope for detecting Raman scattering of light from amphetamine sulfate adsorbed to colloidal surfaces (see page 283).

It would have been obvious to use a microscope in the method of Tang, *et al.* because of the common desire of each investigative group to detect analytes using colloidal suspensions to adsorb the analytes and subsequently detect a physical change of the colloids. A skilled artisan would have reasonable expectation of success in using a microscope in Tang's method because of the ease of viewing clusters of colloidal particles. Thus, each and every limitation of claim 29 is taught by the combination of Tang, *et al.* and Faulds, *et al.*; the invention of claim 29 is therefore *prima facie* obvious over Tang, *et al.* and Faulds, *et al.* and properly rejected under 35 U.S.C. 103(a).

Conclusion

7. No claims are allowed.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to STUART W. SNYDER whose telephone number is (571)272-9945. The examiner can normally be reached on 9:00 AM-5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce R. Campell can be reached on (571) 272-0974. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mary E Mosher/
Primary Examiner, Art Unit 1648

Stuart W Snyder
Examiner
Art Unit 1648

SWS